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(Reaffirmed 2012)

IS : 4221 - 1967
(Reaffirmed 1977)
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Indian Standard

QUALITY TOLERANCES FOR WATER FOR TANNING INDUSTRY

(First Reprint NOVEMBER 1979)

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QUALITY TOLERANCES FOR WATER FOR TANNING INDUSTRY

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Indian Standard

QUALITY TOLERANCES FOR WATER FOR TANNING INDUSTRY

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 14 June 1967, after the draft finalized by the Water Sectional Committee had been approved by the Chemical Division Council.

0.2 Water is used in tanning in a number of operations, namely, soaking the hides and skins, liming, deliming, bating, pickling, tanning (vegetable and chrome), bleaching, dyeing and fat liquoring. The quality requirements of water vary from one operation to another.

0.3 In the individual operations, the tanners take the quality of water into consideration while fixing the treatment period, quantity of chemicals being added, etc. This standard is intended to guide tanners in judging the suitability of a particular supply of water and in planning the type of treatment required for available supply of water.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard prescribes the quality tolerances for water for use in different operations in tanning industry.

2. TOLERANCES

2.1 General Tolerances — The water shall comply with the tolerances given in Table 1. The tests shall be carried out according to methods laid down in IS : 3025-1964†. Reference to the relevant clauses of IS : 3025-1964† is given in col 4 of Table 1.

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*Rules for rounding off numerical values (*revised*).

†Methods of sampling and test (physical and chemical) for water used in industry.

TABLE 1 GENERAL TOLERANCES FOR WATER FOR TANNING INDUSTRY

(*Clause* 2.1)

Sl No.	Characteristic	Tolerance	Method of Test (Ref to Cl No. of IS : 3025-1964*)
(1)	(2)	(3)	(4)
i)	Colour (Hazen units), *Max*	25	5
ii)	Turbidity (units), *Max*	20	6
iii)	*p*H	6·5 to 8·0	8
iv)	Total alkalinity (as $CaCO_3$), mg/l, *Max*	150	13
v)	Total hardness (as $CaCO_3$), mg/l, *Max*	500	16
vi)	Iron (as Fe) and manganese (as Mn), mg/l, together, *Max*	1·0	32 and 35

*Methods of sampling and test (physical and chemical) for water used in industry.

2.2 Additional Tolerances for Specific Operations — In addition to the tolerances given in Table 1, the water shall also comply, for specific operations, with the tolerances given in Table 2. The tests shall be carried out according to methods laid down in IS : 1622-1964* and IS : 3025-1964†. Reference to the relevant clauses of these standards is given in col 9 and 10 of Table 2.

3. SAMPLING

3.1 Representative test samples of the water shall be drawn as prescribed in 2 of IS : 1622-1964* and 2 of IS : 3025-1964†.

4. TEST METHODS

4.1 Tests shall be carried out according to methods given in IS : 1622-1964* and IS : 3025-1964†.

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*Methods of sampling and test for microbiological examination of water used in industry.

†Methods of sampling and test (physical and chemical) for water used in industry.

TABLE 2 ADDITIONAL TOLERANCES FOR SPECIFIC OPERATIONS

(*Clause* 2.2)

SL No.	CHARACTERISTIC	TOLERANCE FOR						METHOD OF TEST, REF TO CL NO. IN	
		Soaking	Liming	Deliming; Bating	Leaching Tanning Extract; Dyeing with Basic Dyes; Fat Liquoring	Vegetable Tanning	Chrome Tanning	IS : 1622-1964*	IS : 3025-1964†
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
i)	Standard plate count, per ml, *Max*	100	—	—	—	—	—	5	—
ii)	Total hardness (as $CaCO_3$), mg/l, *Max*	—	—	—	30	30	300	—	16
iii)	Carbonate hardness (as $CaCO_3$), mg/l, *Max*	—	50	50	—	—	—	—	17
iv)	‡Chlorides (as Cl), mg/l, *Max*	—	—	—	—	500	500	—	24

*Methods of sampling and test for microbiological examination of water used in industry.

†Methods of sampling and test (physical and chemical) for water used in industry.

‡High amounts of chloride tend to repress swelling of hides in tan liquors.

INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

Quantity	*Unit*	*Symbol*
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

Quantity	*Unit*	*Symbol*
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

QUANTITY	UNIT	SYMBOL	DEFINITION
Force	newton	N	1 N = 1 kg.m/s^2
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	2 T = 1 Wb/m^2
Frequency	hertz	Hz	1 Hz = 1 c/s (s^{-1})
Electric conductance	siemens	S	1 S = 1 A/V
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress	pascal	Pa	1 Pa = 1 N/m^2

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